TALASAEA
CONSULTANTS, INC.

16 December 2016

TAL-683G

City of Issaquah
Development Services

REFERENCE: Mallard Bay, Issaquah, Washington
SUBJECT: Variance Request – Project Narrative

To Whom it May Concern:

The below narrative outlines the details of the variance request for the Mallard Bay project.

Proposed Project

The Applicant proposes to develop a 34-lot single-family residential community with the associated infrastructure and stormwater elements. The Site is located within the City of Issaquah, but outside of the City of Issaquah shoreline jurisdiction. The Site contains portions of three critical areas: Many Springs Creek and Wetlands A and B. Many Springs Creek was recently relocated around 2007 to 2009 to its current location across the Site with associated wetland mitigation. This stream is a salmonid-bearing creek with a standard 100-foot buffer. Wetland A is Category III wetland located around Many Springs Creek across the southern portion of the Site and has a standard 50-foot buffer. Wetland B is a small, approximately 1,500 square foot, Category IV wetland located par allel to SE 43rd Way at the toe of a steep slope. Wetland B does not have a standard buffer due to its low rating and small size.

Project Need

A variance is requested to accommodate atypical stream buffer reductions and spanning of a wetland to provide for a necessary access road into the proposed development. The proposed impacts have been minimized to the greatest extent feasible to ensure an economically viable development.

Due to a series of site and vicinity constraints, access to the development will be provided by an entrance road off of SE 43rd Way northeast of the culvert crossing of Many Springs Creek. This entrance road aligns with another access road immediately across the street and provides for a safe access into the Site, as requested by the City of Issaquah to prevent conflicting turning movements. Shifting the road south would greatly increase critical area impacts as the road would have to cross both wetlands and the main stream channel, as well as the associated

buffers on either side of these features. The City required offset between driveways is 200 feet. A shift north would be difficult as that would put the access road directly onto steep slopes, which is a potential safely hazard, as well as a potential hardship for fire trucks and other emergency vehicles.

Proposed Project Impacts

This proposed entrance road will require a vault or bridge to span the southernmost tip of Wetland B, as well as encroaching into the buffer for Many Springs Creek. The short bridged span of road will preclude any direct impacts to Wetland B while also preserving the corridor through which this wetland flows into Many Springs Creek. While Wetland B is not required to have a standard buffer, the wetland itself must still be protected. Vegetation within this portion of Wetland B comprised primarily salmonberry with various species of grasses. Using a vault or bridge to span the wetland ensures that no wetland fill will occur, while wetland function will be retained.

The culvert for Many Springs Creek's crossing under SE 43rd Way is located immediately south of the proposed access road and will remain undisturbed by the proposed development. Approximately 8,274 square feet of stream buffer will be impacted to account for this access road. Retaining walls are proposed to minimize the roadway footprint. The road has been designed to minimize buffer impacts while constructing a safe roadway that meets all current codes. No impacts to the stream channel will occur.

Approval Criteria

1. **The variance is in harmony with the purpose and intent of the relevant City ordinances and the Comprehensive Plan;**

   The requested variance allows for safe access to the proposed residential community while minimizing the critical area impacts to the greatest extent practicable on this Site. These actions are consistent with the City ordinances and Comprehensive Plan.

2. **The variance shall not constitute a grant of special privilege which would be inconsistent with the permitted uses, or other properties in the vicinity and zone in which the subject property is located;**

   Critical area buffers throughout the Site have been retained at their full standard width to the greatest extent feasible. Modifications to the critical area buffers in any form have been restricted to the minimum necessary to produce a complete construction footprint to create an economically viable project. The project is consistent with the development in the surrounding area, and ultimately, will allow for a residential community while retaining a substantial riparian corridor across the Site.

3. **That such variance is necessary, because of special circumstances relating to the size, shape, topography, location or surroundings of the subject property, to provide it with use rights and privileges permitted to other properties in the vicinity, located in the same zone as the subject property and developed under the same land use regulations as the subject property requesting the variance;**

   The Site has multiple constraints that make development challenging, including wetlands, streams, associated buffers, and steep slopes. The locations of these elements has guided the design of the proposed project. The combination of all of these elements, in addition to the location of an existing driveway along SE 43rd Way, has determined the final location of the required access road. No other feasible locations to construct an access road exist without greatly increasing the impacts to critical areas or risking safety concerns.

4. **That the granting of such variance will not be materially detrimental to the public welfare or injurious to the property or improvements in the vicinity and zone in which the subject property is situated;**

   The requested variance will not be materially detrimental to the public welfare or property in the vicinity and zone of the Site. The variance will allow for the required access road for the proposed development while maintaining the integrity of the existing critical areas and their buffers.

5. **That alternative development concepts that comply with the Code provisions to which the variance is requested have been evaluated, and that undue hardship would result if the strict adherence to the Code provisions were required;**

   Alternative locations of the access road were evaluated, but were discarded for one of several reasons: did not comply with the City's requested road location to align with an existing driveway immediately across SE 43rd Way; significantly increased impacts to critical areas and their buffers; increased safety concerns for a road location on steep slopes that would not allow a safely graded roadway.

6. **The variance granted is the minimum amount that will comply with the criteria listed above and the minimum necessary to accommodate the permitted uses proposed by the application, and the scale of the use shall be reduced as necessary to meet this requirement; and**

   The road right-of-way is the minimum required to construct an access road that meets the requirements of the City of Issaquah. Retaining walls are proposed to reduce the road footprint to the greatest extent practicable to also reduce impacts to the stream buffer.

7. **The need for the variance is not the result of actions of the applicant or property owner.**

   The actions of the Applicant or Property Owner have had no bearing on this access road location requirement.

Compensation
An additional 11,127 square feet of additional stream buffer will be added to replace the stream buffer lost. These areas are already fully functioning buffer and will be added between the existing stream buffer and the proposed development. The areas added to the stream buffer in the post-development condition are already full vegetated with native trees, shrubs, and herbaceous species, thus no enhancement plantings are proposed.

We trust that the information presented here sufficiently answers your comments and that you will be able to move this project forward. If you have additional questions or require more information, please contact Bill Shiels or me at (425) 861-7550.

Thank you.

Sincerely,

TALASAEA CONSULTANTS, INC.

Jennifer M. Marriott, PWS
Senior Ecologist

cc: Mr. Leo Suver, The Bernsteads

CRITICAL AREAS REPORT AND CONCEPTUAL MITIGATION PLAN

MALLARD BAY
ISSAQUAH, WASHINGTON

Prepared For:
THE BURNSTEADS

Prepared By:
TALASAEA CONSULTANTS, INC.

16 December 2016

Critical Areas Report and Conceptual Mitigation Plan

Mallard Bay
Issaquah, Washington

Prepared For:

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16 December 2016

EXECUTIVE SUMMARY

PROJECT NAME:	Mallard Bay
CLIENT:	The Burnsteads
SITE LOCATION:	The property is located southeast of the intersection of SE 43rd Way and East Lake Sammamish Parkway SE in Issaquah, Washington. The Public Land Survey System location of the property is the SW ¼ of Section 16, T24N, R6E, Willamette Meridian.
PROJECT STAFF:	Bill Shiels, Principal; Ann Olsen, Senior Project Manager; David R. Teesdale, Senior Wetland Ecologist
FIELD SURVEY:	The wetlands and stream were delineated on 28 July, 1 August, and 20 October 2016.

DETERMINATION: One stream and two wetlands were identified and delineated on the property. The stream (Many Springs Creek) is a Type F water. The wetlands were rated using the Washington State Wetland Rating System for Western Washington (2006). Wetland A is a Category III wetland with a 50-foot standard buffer. Wetland B is a Category IV wetland. Since Wetland B is under 2,500 square feet in size, it has no buffer requirement under Issaquah Municipal Code (IMC) Chapter 18.10.640(C).

HYDROLOGY: Hydrology for the wetlands is supported, for the most part, by shallow groundwater and interception of seasonal precipitation.

SOILS: Soils on the property are mapped by the NRCS as Everett very gravelly sandy loam, 8 to 15% slopes; Kitsap silt loam, 2 to 8 percent slopes; Kitsap silt loam, 15 to 30 percent slopes; and Mixed Alluvial Land.

VEGETATION: Wetlands A is a forested wetland that includes red alder, black cottonwood, and western red cedar trees. Understory vegetation includes salmonberry, black twinberry, lady fern, American skunk cabbage, slough sedge, reed canarygrass, and others. Wetland B is vegetated primarily by shrub species, such as salmonberry and Himalayan blackberry. Other species include red alder and Oregon ash (under 20 feet tall) and lady fern.

PROPOSED PROJECT: The Burnsteads proposes to develop the property with 34 single-family residences. Access to the development will be provided by a new entrance road constructed off of SE 43rd Way.

ASSESSMENT OF DEVELOPMENT IMPACTS: The proposed entrance road will impact approximately 9,741 square feet of buffer for Many Springs Creek. The Site will impact approximately 1,185 square feet of buffer for Wetland A, and approximately 973 square feet of temporary buffer impacts are anticipated for stormwater dispersion trenches. Mitigation for the unavoidable impacts will be provided through buffer averaging. No less than 11,127 square feet of upland forest will be added to the existing buffer for Many Springs Creek. Additionally, no less than 1,185 square feet of upland forest will be added to the existing buffer for Wetland A. Since the areas of proposed buffer addition provide equal or greater habitat value compared to the areas of proposed buffer reduction, no enhancement plantings will be required. Minor buffer impacts will also result from required frontage improvements along SE 43rd Way that will be addressed in more detail once the design has been finalized. All critical areas and their respective buffers will be placed within an NGPE tract and protected using rail fencing and signage, as required by Issaquah Municipal Code §18.10.515 and 18.10.480.

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Chapter 1. INTRODUCTION

1.1 Report Purpose

This report is the result of a critical area study for the Lot 7 property located southeast of the intersection of East Lake Sammamish Way and SE 43rd Way. The property (referred to as "Site" hereinafter) is located in the City of Issaquah, Washington (**Figure 1**). The purpose of this report is to identify, categorize, and describe existing site conditions, such as wetlands, streams, or other critical habitats and their respective buffers. This report has been prepared to comply with the requirements of the City of Issaquah Municipal Code (IMC) §18.10.

This report will provide and describe the following information:

- General property description;
- Methodology for critical areas investigation;
- Results of critical areas background review and field investigation;
- Existing site conditions;
- Regulatory review;
- An assessment of the proposed development and impacts to critical areas or their associated buffers resulting from said development; and
- Provide a detailed conceptual mitigation plan to offset any unavoidable impacts to critical areas or their associated buffers

1.2 Statement of Accuracy

Wetland characterizations and ratings were conducted by trained professionals at Talasaea Consultants, Inc., and adhered to the protocols, guidelines, and generally accepted industry standards available at the time the work was performed. The conclusions in this report are based on the results of analyses performed by Talasaea Consultants and represent our best professional judgment. To that extent and within the limitation of project scope and budget, we believe the information provided herein is accurate and true to the best of our knowledge. Talasaea does not warrant any assumptions or conclusions not expressly made in this report, or based on information or analyses other than what is included herein.

Chapter 2. GENERAL PROPERTY DESCRIPTION AND LAND USE

2.1 Property Location

The Site is an approximately 13-acre parcel located southeast of the intersection of East Lake Sammamish Way and SE 43rd Way in the City of Issaquah, Washington. The King County Tax Parcel number of the Site is 1624069007 (**Figure 2**). The Public Land Survey System location of the Site is the SE ¼ of Section 16, T24N, R6E, Willamette Meridian.

2.2 General Property Description

The topography of the Site slopes downward from the east to the west. An area of relatively steep slopes exists in a north-south aspect approximately following the midline of the Site. The topography becomes significantly less sloped in the western third of the Site (**Figure 2**).

The site is currently undeveloped, but was developed with a single-family residence with associated outbuildings in the past. A relatively flat area in the eastern third of the Site was used for equipment storage. These uses no longer exist on the Site. Property to the north and east are owned by Washington State as part of the Lake Sammamish State Park.

Development to the north of the Site (north of SE 43rd Way) and the construction of a roundabout at the intersection of SE 43rd Way and East Lake Sammamish Parkway SE required the demolition and removal of the previously existing buildings. A wetland mitigation project for the residential development north of SE 43rd Way was constructed in the western third of the Site. This mitigation involved rerouting a stream (Many Springs Creek) to a new streambed away from SE 43rd Way.

Chapter 3. METHODOLOGY

The critical areas analysis of the Site involved a two-part effort. The first part consisted of a preliminary assessment of the Site and the immediate surrounding area using published environmental information. This information includes:

1) Wetland and soils information from resource agencies;
2) Critical Areas information from King County and City of Issaquah;
3) Orthophotography and LIDAR imagery; and,
4) Relevant studies completed or ongoing in the vicinity of the Site.

The second part consisted of site investigations where direct observations and measurements of existing environmental conditions were made. Observations included plant communities, soils, and hydrology. This information was used to help characterize the site and define the limits of critical areas onsite and offsite for regulatory purposes (see **Section 3.2 – Field Investigation** below).

3.1 Background Data Reviewed

Background information from the following sources was reviewed prior to field investigations:

- US Fish and Wildlife Service (USFWS), Wetlands Online Mapper (National Wetlands Inventory, NWI) (U.S. Fish and Wildlife Service 2016) (www.wetlandsfws.er.usgs.gov/wtlnds/launch.html);
- Natural Resources Conservation Service (NRCS), Web Soil Survey (NRCS 2016)(www.websoilsurvey.nrcs.usda.gov/app/);
- King County Landscaping Imaging;
- Washington Department of Fish and Wildlife (WDFW) Priority Habitat and Species (PHS) Database on the Web (www.wdfw.wa.gov/mapping/phs/); and
- Orthophotography from Earth Explorer (USGS) and Google Earth.

3.2 Field Investigations

Talasaea Consultants evaluated the Site on 28 July, 1 August, and 20 October 2016. Our wetland delineation utilized the routine approach described in the *Regional*

Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountain, Valleys, and Coast Regions (U.S. Army Corps of Engineers 2010).

Plant species were identified according to the taxonomy of *Vascular Plants of the Pacific Northwest* (Hitchcock and Cronquist 1973). Taxonomic names were updated and plant wetland status was assigned according to *North American Digital Flora: National Wetland Plant List, Version 2.4.0* (Lichvar 2012). Wetland classes were determined using the U.S. Fish and Wildlife Service's system of wetland classification (Cowardin 1979). Vegetation was considered hydrophytic within a suspected wetland area if greater than 50% of the dominant plant species had a wetland indicator status of facultative or wetter (i.e., facultative, facultative wetland, or obligate wetland).

Wetland hydrology was determined based on the presence of hydrologic indicators listed in the Corps regional supplement. These indicators are separated into Primary Indicators and Secondary Indicators. To confirm the presence of wetland hydrology, one Primary Indicator or two Secondary Indicators must be demonstrated. Indicators of wetland hydrology may include, but are not necessarily limited to: drainage patterns, drift lines, sediment deposition, watermarks, stream gauge data and flood predictions, historic records, visual observation of saturated soils, and visual observation of inundation.

Soils on the site were considered hydric if one or more of the hydric soil indicators listed in the Corps Regional Supplement were present. Indicators include the presence of organic soils, reduced, depleted, or gleyed soils, or redoximorphic features in association with reduced soils.

An evaluation of patterns of vegetation, soil, and hydrology was made along the interface of wetland and upland. Wetland boundary points were then determined from this information and marked with wire flags or surveyors tape. **Appendix A** contains data forms prepared by Talasaea for representative locations in both upland and wetland locations. These data forms document the vegetation, soils, and hydrology information that aided in the wetland boundary determination.

Chapter 4. RESULTS

This section describes the results of our in-house research and field investigations. For the purpose of this report, the term "vicinity" describes an area within 300 feet of the Site.

4.1 Analysis of Existing Information

The following sources provided information on site conditions based on data compiled from resource agencies and local government.

4.1.1 National Wetland Inventory

The National Wetland Inventory maps one palustrine forested seasonally flooded (PFOC) wetland, one palustrine scrub-shrub seasonally flooded wetland (PSSC), and one palustrine scrub-shrub semi-permanently flooded wetland (PSSF) on the Site (**Figure 3**). No other wetlands are mapped within 300 feet of the Site, though several riverine systems are identified within the vicinity of the Site but not within the Site.

4.1.2 Natural Resources Conservation Service

The NRCS has mapped four soil types on the Site (**Figure 4**). These are Everett very gravelly sandy loam, 8 to 15% slopes; Kitsap silt loam, 2 to 8 percent slopes; Kitsap silt loam, 15 to 30 percent slopes; and Mixed Alluvial Land, which is simply a catch-all map unit for soils with minimal horizon development that would allow classification.

The Kitsap series is made up of moderately well drained soils that formed in glacial lake deposits, under a cover of conifers and shrubs. These soils are on terraces and strongly dissected terrace fronts. The surface layer and subsoil are very dark brown and dark yellowish brown silt loam. Everett gravelly sandy loam is a nearly level to undulating, somewhat excessively drained soil. It forms in gravelly glacial outwash under conifers. The surface is typically very dark brown gravelly sandy loam. The subsoil is dark yellowish-brown gravely sandy loam. The National Technical Committee on Hydric Soils does not include any of the mapped soil series onsite on its list of hydric soils.

4.1.3 City of Issaquah Critical Areas Maps

The City of Issaquah's current published resource maps do not include the Mallard Bay area as of yet.

4.1.4 King County GIS

King County maps a wetland in the southeastern corner of the Site (**Figure 5**). The map also shows one stream on the Site flowing along SE 43rd Way and crossing under East Lake Sammamish Parkway. In addition, King County also maps Laughing Jacobs Creek adjacent to the Site's southern boundary.

King County also provides a wetland rating for each wetland in its database. However, the rating used for these wetlands is outdated and incompatible with the currently accepted wetland rating methodology.

4.1.5 Washington Department of Fish and Wildlife Priority Habitats and Species

WDFW PHS indicates the presence of coastal cutthroat trout, fall Chinook, coho, kokanee, and sockeye utilizing Laughing Jacobs Creek (south of the Site), and coastal cutthroat and coho utilizing a stream on the Site. Wetlands mapped by PHS appear analogous to those mapped by the National Wetland Inventory. Additionally, PHS maps the site as part of a biodiversity corridor.

4.1.6 Washington Department of Natural Resources Natural Heritage Database

The Washington Department of Natural Resources Natural Heritage Database does not map any species or natural heritage plant associations on or in the general vicinity of the Site.

4.1.7 SalmonScape and StreamNet

StreamNet and SalmonScape identify several fish species utilizing streams on or adjacent to the Site. **Table 1** contains the species names, information source, stream names, and usage type.

Table 1. StreamNet and SalmonScape Fish Usage Synopsys

Common Name	Species Name	Source	Stream	Usage	Federal T&E Status
Fall Chinook	*Oncorhyncus tshawytscha*	StreamNet	Laughing Jacobs Creek	Migration	T
			Many Springs Creek	N/A	
		SalmonScape	Laughing Jacobs Creek	Documented Presence	
			Many Springs Creek	Modeled Presence*	
Coho	*O. kisutch*	StreamNet	Laughing Jacobs Creek	Migration	
			Many Springs Creek	Migration	
		SalmonScape	Laughing Jacobs Creek	Spawning	
			Many Springs Creek	Documented Presence	
Winter Steelhead	*O. mykiss*	StreamNet	Laughing Jacobs Creek	N/A	T
			Many Springs Creek	N/A	
		SalmonScape	Laughing Jacobs Creek	N/A	
			Many Springs Creek	Modeled Presence	
Sockeye	*O. nerka*	StreamNet	Laughing Jacobs Creek	Migration	
			Many Springs Creek	N/A	
		SalmonScape	Laughing Jacobs Creek	Documented Presence	
			Many Springs Creek	Modeled Presence	
Kokanee	*O. nerka*	StreamNet	Laughing Jacobs Creek	N/A	
			Many Springs Creek	N/A	
		SalmonScape	Laughing Jacobs Creek	Documented Presence	
			Many Springs Creek	N/A	

*Modeled presence indicates that known stream conditions might support populations of a fish species, but there are currently no records of actual presences of the species.

4.2 Analysis of Existing Conditions

Two (2) wetlands and one stream were identified on the Site (**Figure 6**). The wetlands were labeled as Wetlands A and B. The stream is labeled as Many Springs Creek. Wetland A is located in the southwestern third of the Site. It generally extends from SE 43rd Way (approximately 200 ft northeast of the roundabout) eastward to Many Springs Creek, then follows the toe of the steep slope in a southeasterly direction and extends

offsite beyond the Site's east and south parcel boundaries. The wetland also extends southward towards the road prism for East Lake Sammamish Parkway. Wetland A was modified in 2009 as part of a mitigation plan for offsite wetland impacts (Mallard Bay Phase 1 – Lot 76).

Wetland B is a small wetland (<2,500 square feet) located north of Many Springs Creek along the edge of SE 43rd Way. It is bounded on the west side by the road prism for SE 43rd Way and to the east by the toe of a steep slope area.

We rated Wetlands A and B using the Washington State Wetland Rating System for Western Washington (rev. 2006), as required by the current IMC. Wetland A is a depressional wetland that scored 12 points for Water Quality Functions, 6 points for Hydrology Functions, and 21 points for Habitat Functions. The total Score for Functions is 43, which satisfies the criteria for classification as a Category III wetland. Category III wetlands with a habitat score of 21 or less have a 50-foot standard buffer.

Wetland B is a 1,553 square foot slope wetland that scored 8 points for Water Quality Functions, 6 points for Hydrology Functions, and 17 points for Habitat Functions. The Total Score for Functions is 21, which satisfies the criteria for classification as a Category IV wetland. Category IV wetlands under 2,500 square feet in size within the City of Issaquah do not have a required buffer width.

Many Springs Creek has its headwaters in the slopes to the north of the Site (north of SE 43rd Way) and flows onto the Site approximately 445 ft northeast of the roundabout. Prior to the development of the parcel northwest of SE 43rd Way, Many Springs Creek flowed in a channel along the south side of SE 43rd Way for approximately 250 ft. It then turned to a southeasterly direction and flowed adjacent to the road prism of East Lake Sammamish Parkway SE to Laughing Jacobs Creek. Many Springs Creek was subsequently placed in a new streambed as part of a mitigation project constructed between 2007 and 2010. Many Springs Creek now flows along the toe-of-slope for approximately 360 feet before entering an old abandoned streambed. Many Springs Creek still discharges into Laughing Jacobs Creek at its historical location.

Chapter 5. PROPOSED PROJECT

5.1 Development Plan

The Burnsteads are proposing to develop the Site with 34 units of single-family residences. Access to the development will be provided by an entrance road off of SE 43rd Way northeast of the culvert crossing of Many Springs Creek. The entrance road will intersect with a new north-south road running the length of the development. This road will end with "T" intersections at both ends.

There are two detention vaults and two modular wetland systems proposed. The entry road and frontage will drain to the West Vault and the lots and remaining roads will drain to the East Vault. Water Quality treatment will be provided by a Modular Wetland System downstream of the detention vaults and discharge to Wetland A through a dispersion trench.

The proposed entrance road will employ a vault or bridge to span the southernmost tip of Wetland B. While Wetland B is not required to have a standard buffer, it still must be protected. Using a vault or bridge to span the wetland ensures that no wetland fill will occur. **No dredging or filling of wetlands or streams is proposed as part of this project.**

5.2 Analysis of Development Impacts

Mitigation sequencing is required pursuant to IMC §18.10.490(A) to ensure that all necessary measures were taken prior to impacts to critical areas being proposed. The sequencing process has a list of actions (paraphrased following) that should be addressed in the this order: avoid impacts altogether; minimize impacts through avoidance or reduction of the impacts to the extent practicable; rectify impacts through repair, rehabilitation, or restoring affected environment; Compensate for impact through replacement, restoration, creation, or enhancement; and then monitor the impact and compensation projects.

The proposed development plan for the Site avoids all impacts to critical areas to the maximum extent practicable. Standard buffers have been retained wherever possible. No dredging or filling is proposed within either wetland or the stream. The proposed project impacts to critical areas are as follows:

- Wetland A buffer impact – 1,185 square feet
- Stream buffer impacts – 9,741 square feet
    - Variance for Road Crossing – 8,274 square feet
    - Standard buffer averaging near vault – 1,467 square feet
- Temporary buffer impacts for utilities – 973 square feet

The associated permanent buffer impacts to Wetland A will be offset through buffer averaging with replacement areas provided as compensation, consistent with IMC §18.10.650(D)(5). Stream buffer impacts to Many Springs Creek will be offset through buffer averaging consistent with IMC §18.10.790(D)(6) where applicable around the proposed stormwater vault. Approximately 8,274 square feet of buffer for Many Springs Creek will be permanently impacted as a result of the proposed entrance road to the development. A variance request is being submitted concurrently with this application to address this atypical buffer encroachment for the access road. This permanent impact is unavoidable since no feasible alternative access exists due to the extensive wetlands along East Lake Sammamish Parkway SE and the lower stretches of SE 43rd Way, the steep slopes located along SE 43rd Way farther north from the proposed access point, and the location of an existing driveway across SE 43rd Way. The proposed location of the entrance road is in alignment with the entrance road for the development on the west side of SE 43rd Way. Locating the entrance road farther to the north could potentially impact less critical area buffer, but may not provide sufficient line-of-sight for a road bend north of the Site. Minor buffer impacts will also result from required frontage improvements along SE 43rd Way that will be addressed in more detail once the design has been finalized.

Chapter 6. PROPOSED MITIGATION PLAN

Impacts resulting from the proposed critical area buffer impacts outlined above will be mitigated through buffer averaging. No less than 11,127 square feet of upland forest south of the proposed entrance road will be added to the buffer for Many Springs Creek. This forested area has relatively high value for habitat and is relatively undisturbed. The wetland buffer reduction will be mitigated by adding no less than 1,185 square feet of upland forest adjacent to the southeast corner of the development to the existing wetland buffer. This area of upland forest also has relatively high value for habitat and is relatively undisturbed. Enhancement planting of the stream or wetland buffers is not proposed at this time. The additional buffer provided back will ensure no net loss of buffer area in the pre- and post-development condition.

The areas of temporary buffer impacts resulting from the stormwater dispersion trenches will be restored after construction to their pre-development condition. Plantings of native species will be added to restore these areas.

Critical areas, steep slopes, and their associated buffers will be placed within a Native Growth Protection Easement (NGPE) tract per IMC §18.10.515(B) and further protected by installation of a perimeter split rail fence or similar fence around the NGPE. Signage will be provided per IMC §18.10.480(C) to denote the NGPE limits.

Chapter 7. SUMMARY

The Mallard Bay project is located on an irregularly-shaped parcel in the City of Issaquah. The Site has two wetlands (one Category III wetland and one Category IV wetland) and one stream. The stream is identified as Many Springs Creek. The Burnsteads plans to develop the Site as single-family residential community with associated utilities and infrastructure.

The development plans have been designed to avoid all impacts to wetlands, stream, or their associated buffers to the maximum extent practicable. No dredging or filling is proposed within any wetlands or streams. However, it will be necessary to impact approximately 9,741 square feet of stream buffer for the proposed entrance road to the development and a stormwater vault; approximately 1,185 square feet of wetland buffer; and temporarily impact approximately 973 square feet for stormwater dispersion trenches. Minor buffer impacts will also result from required frontage improvements along SE 43rd Way that will be addressed in more detail once the design has been finalized.

Mitigation for these impacts will be provided through buffer averaging with approximately 11,127 square feet of stream buffer and 1,185 square feet of wetland buffer added back to ensure no net loss of buffer area. Sufficient high-quality forested upland is available to offset the impacts to both the stream and wetland buffers. No additional mitigation, plantings, or subsequent performance monitoring will be required for this project. NPGE fencing will be installed at the outer limits of the critical area buffers to prevent intrusions by humans or their pets.

Chapter 8. REFERENCES

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Washington State Department of Natural Resources. (2014, January). *Natural Heritage Information System*. Retrieved from http://www1.dnr.wa.gov/nhp/refdesk/datasearch/

FIGURES

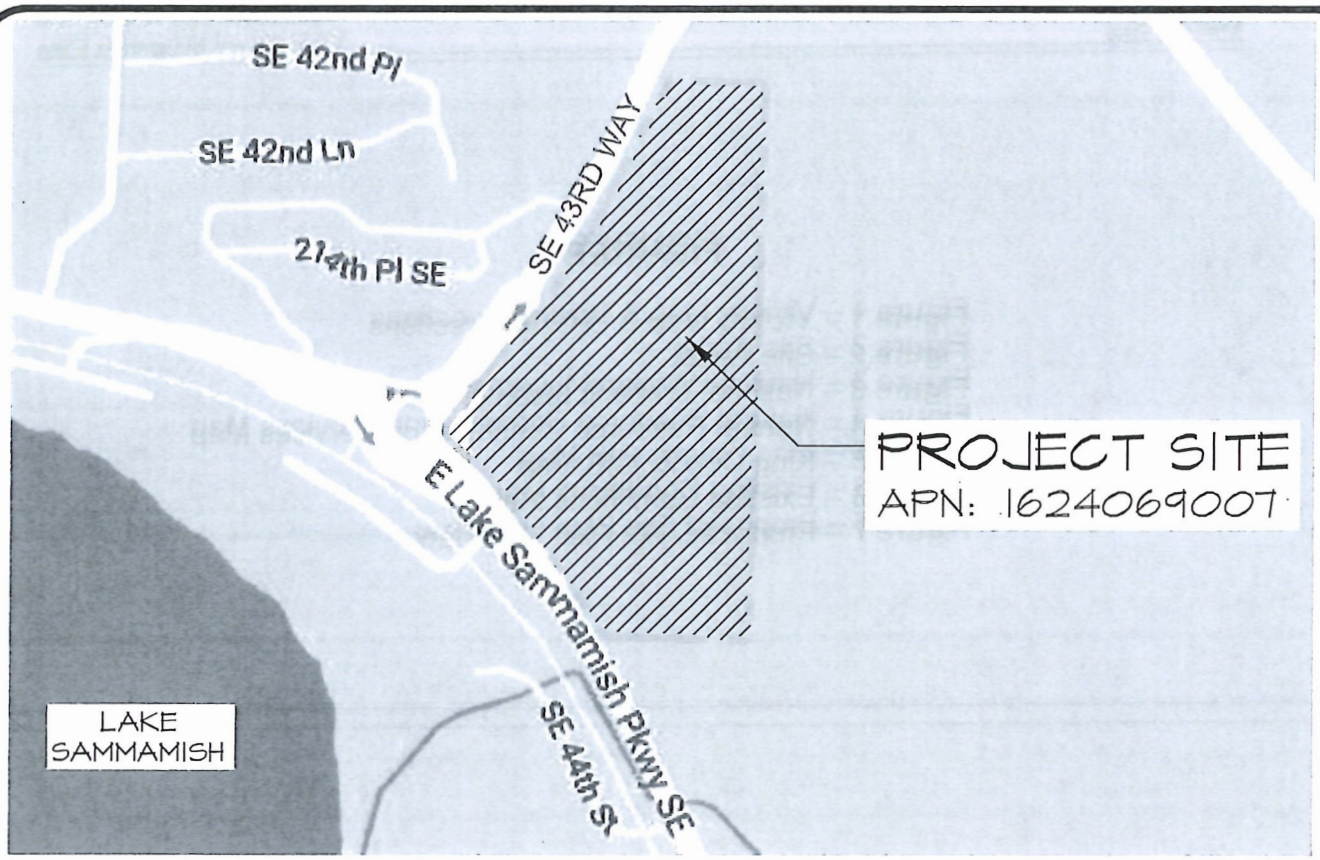

IMAGE SOURCE: GOOGLE MAPS, WWW.MAPS.GOOGLE.COM (ACCESSED 7 DEC. 2016)

DRIVING DIRECTIONS:

1. FROM DOWNTOWN SEATTLE, GET ONTO INTERSTATE 5 SOUTH TOWARD PORTLAND.
2. FOLLOW THE SIGNS FOR INTERSTATE 90 E/BELLEVUE/SPOKANE AND MERGE ONTO I-90 E.
3. IN 11.7 MILES USE THE RIGHT 2 LANES TO TAKE EXIT 15 FOR WA-900 W/17TH AVE NW.
4. USE THE LEFT 2 LANES TO TURN LEFT ONTO WA-900 E/17TH AVE NW.
5. CONTINUE STRAIGHT ONTO 17TH AVE NW.
6. CONTINUE ONTO NW SAMMAMISH RD.
7. CONTINUE ONTO SE 56TH ST.
8. USE THE LEFT 2 LANES TO TURN LEFT ONTO E LAKE SAMMAMISH PKWY SE.
9. AT THE TRAFFIC CIRCLE, TURN RIGHT ONTO SE 43RD WAY.
10. ARRIVE AT DESTINATION ON THE RIGHT.

NORTH

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Woodinville, Washington 98077
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FIGURE #1

VICINITY MAP & DRIVING DIRECTIONS
MALLARD BAY - LOT 7
SAMMAMISH, WASHINGTON

DESIGN	DRAWN	PROJECT
	MW	683G

SCALE 1" = 400'
DATE 12-14-16
REVISED

1

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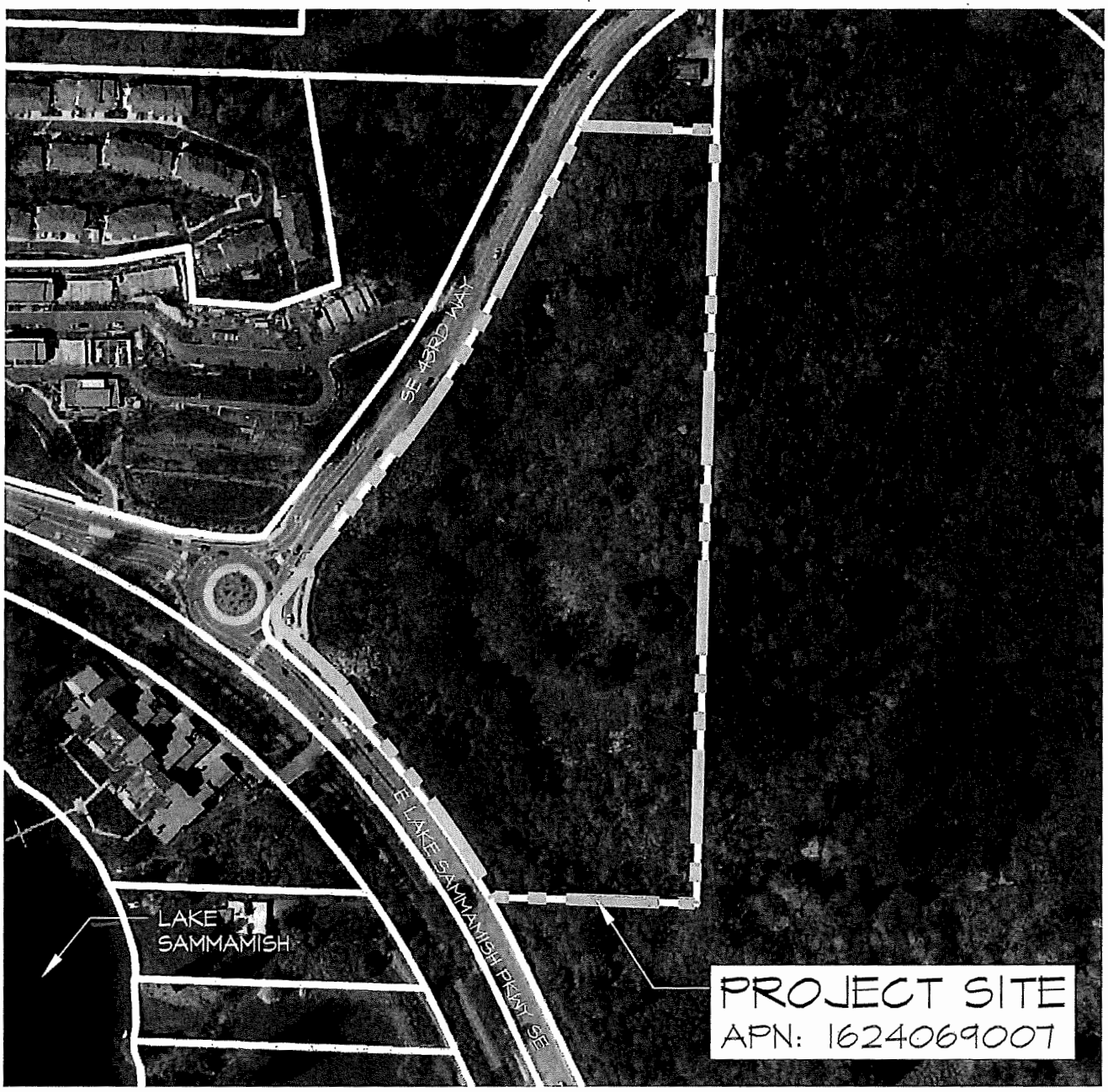

IMAGE SOURCE: KING COUNTY IMAP;
HTTP://WWW5.KINGCOUNTY.GOV/IMAP/VIEWER.HTM?MAPSET=KCPROPERTY
(ACCESSED 8 DEC. 2016)

NORTH

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FIGURE #2

SITE AERIAL
MALLARD BAY - LOT 7
ISSAQUAH, WASHINGTON

DESIGN	DRAWN	PROJECT
	MW	6836

SCALE: NTS
DATE: 12-14-16
REVISED:

2

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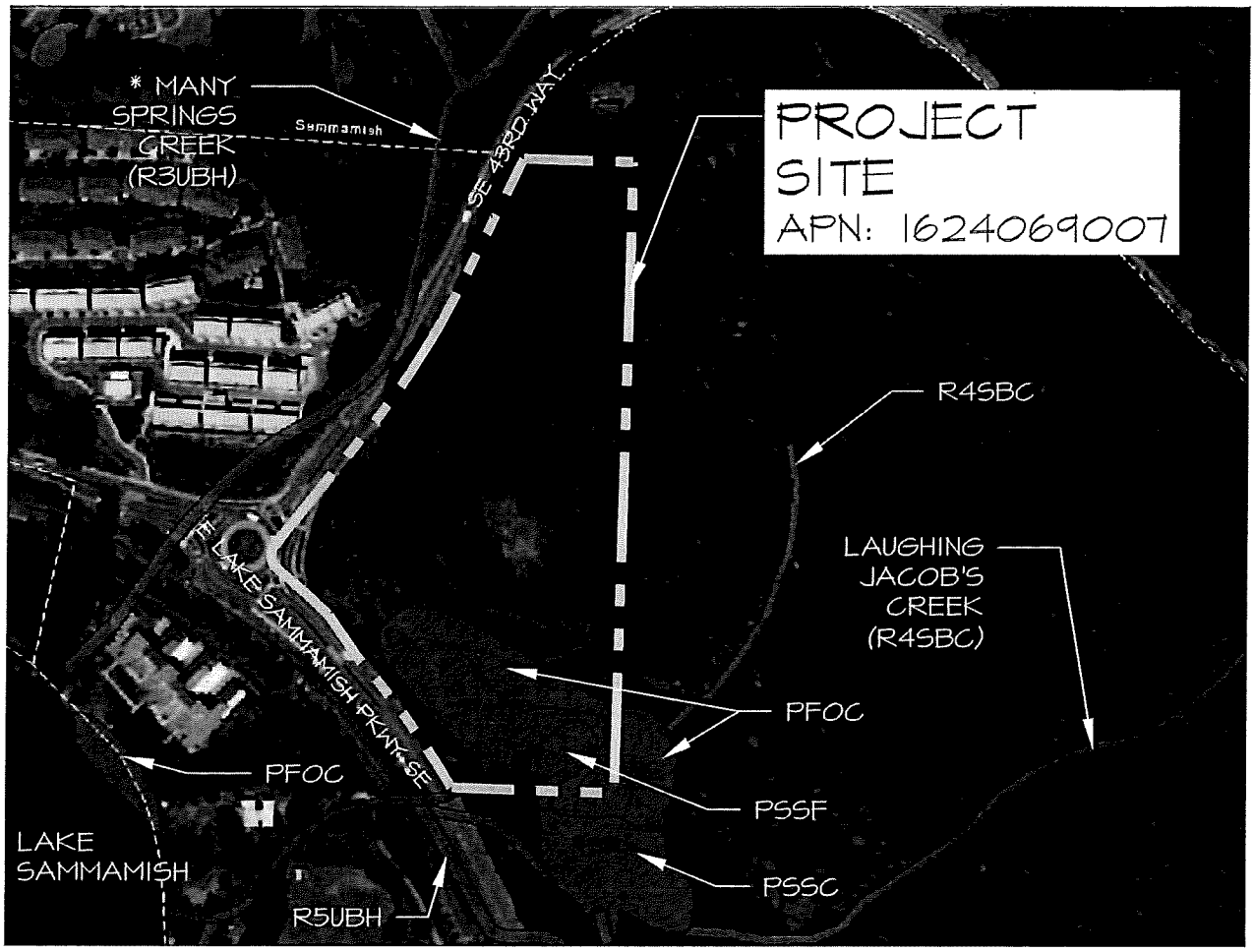

LEGEND

TYPE	DESCRIPTION
PFOC	PALUSTRINE FORESTED, SEASONALLY FLOODED
PSSF	PALUSTRINE SCRUB-SHRUB, SEMIPERMANENTLY FLOODED
PSSC	PALUSTRINE SCRUB-SHRUB, SEASONALLY FLOODED
R3UBH	RIVERINE UPPER PERENNIAL UNCONSOLIDATED BOTTOM, PERMANENTLY FLOODED
R4SBC	RIVERINE INTERMITTENT STREAMBED, SEASONALLY FLOODED
R5UBH	RIVERINE UNKNOWN PERENNIAL UNCONSOLIDATED BOTTOM, PERMANENTLY FLOODED

NORTH

SOURCE: U.S. FISH AND WILDLIFE SERVICE, (JAN 2015). NATIONAL WETLANDS INVENTORY WEBSITE, U.S. DEPARTMENT OF THE INTERIOR, FISH AND WILDLIFE SERVICE, WASHINGTON D.C. https://www.fws.gov/WETLANDS/data/Mapper.html v.2

* MANY SPRINGS CREEK CROSSES SE 43RD WAY ROUGHLY 350 FEET NORTHE OF E LAKE SAMMAMISH PARKWAY TO MEET UP WITH LAUGHING JACOB'S CREEK; DOES NOT CONTINUE DIRECTLY TO LAKE SAMMAMISH.

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FIGURE #3

NATIONAL WETLAND INVENTORY MAP
MALLARD BAY - LOT 7
ISSAQUAH, WASHINGTON

DESIGN	DRAWN	PROJECT
	MW	6836
SCALE	NTS	
DATE	12-14-16	
REVISED		

3

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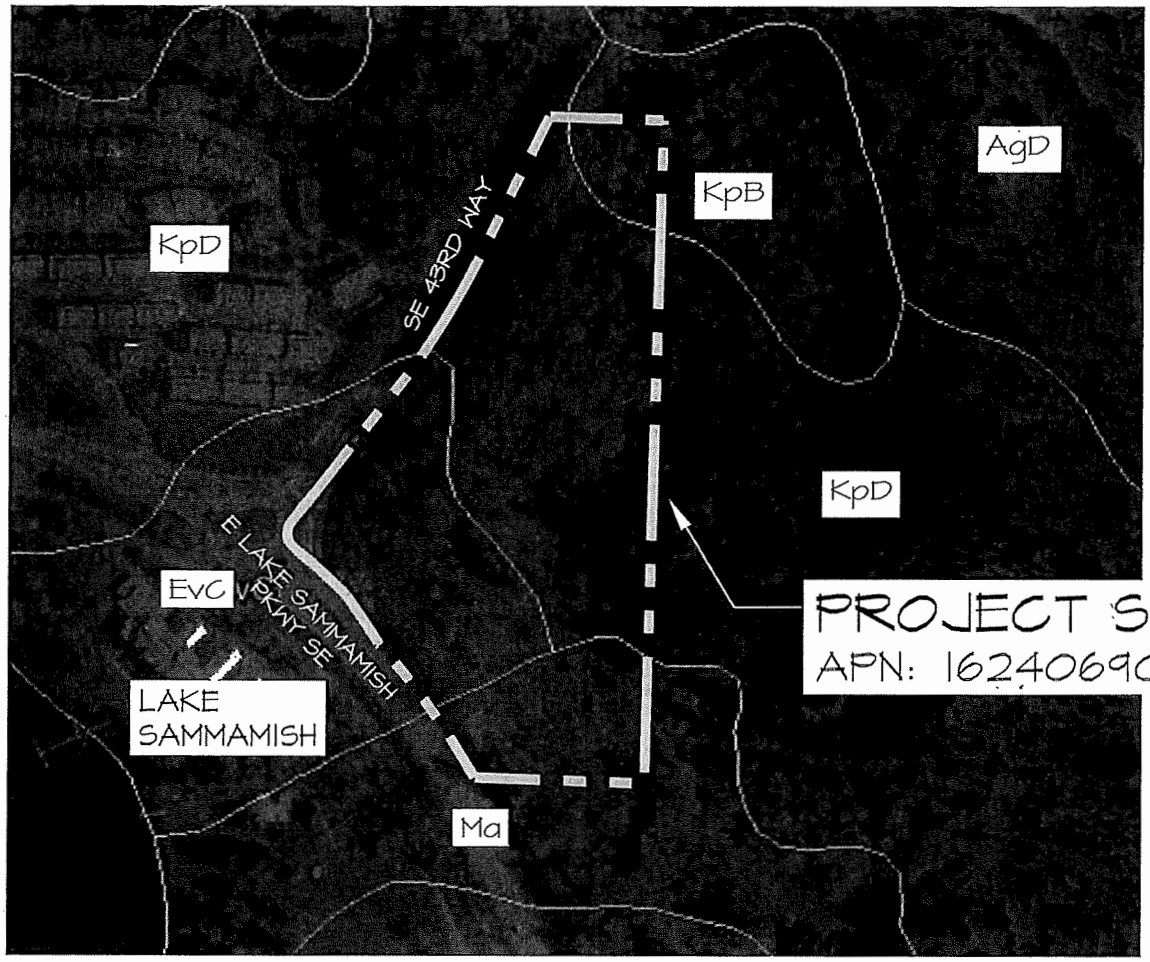

LEGEND

TYPE	DESCRIPTION OF ONSITE SOILS, SLOPES
EvC	EVERETT VERY GRAVELLY SANDY LOAM, 8 TO 15 PERCENT SLOPES
KpB	KITSAP SILT LOAM, 2 TO 8 PERCENT SLOPES
KpD	KITSAP SILT LOAM, 15 TO 30 PERCENT SLOPES
Ma	MIXED ALLUVIAL LAND

SOURCE: SOIL SURVEY STAFF, NATURAL RESOURCES CONSERVATION SERVICE, UNITED STATES DEPARTMENT OF AGRICULTURE, WEB SOIL SURVEY. AVAILABLE ONLINE AT http://websoilsurvey.nrcs.usda.gov/. ACCESSED (12-8-2016).

NORTH

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FIGURE #4

NATURAL RESOURCE CONSERVATION SERVICES MAP
MALLARD BAY - LOT 7
ISSAQUAH, WASHINGTON

DESIGN	DRAWN	PROJECT
	MW	683G
SCALE	NTS	
DATE	12-14-16	4
REVISED		

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NORTH

IMAGE SOURCE: KING COUNTY IMAP;
HTTP://WWW5.KINGCOUNTY.GOV/IMAP/VIEWER.HTM?MAPSET=KCPROPERTY
(ACCESSED 8 DEC. 2016)

* MANY SPRINGS CREEK CROSSES SE 43RD WAY ROUGHLY 350 FEET NORTHE OF E LAKE SAMMAMISH PARKWAY TO MEET UP WITH LAUGHING JACOB'S CREEK; DOES NOT CONTINUE DIRECTLY TO LAKE SAMMAMISH.

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FIGURE #5

KING COUNTY GIS MAP
MALLARD BAY - LOT 7
ISSAQUAH, WASHINGTON

DESIGN	DRAWN	PROJECT
	MW	683G
SCALE	NTS	
DATE	12-14-16	5
REVISED		

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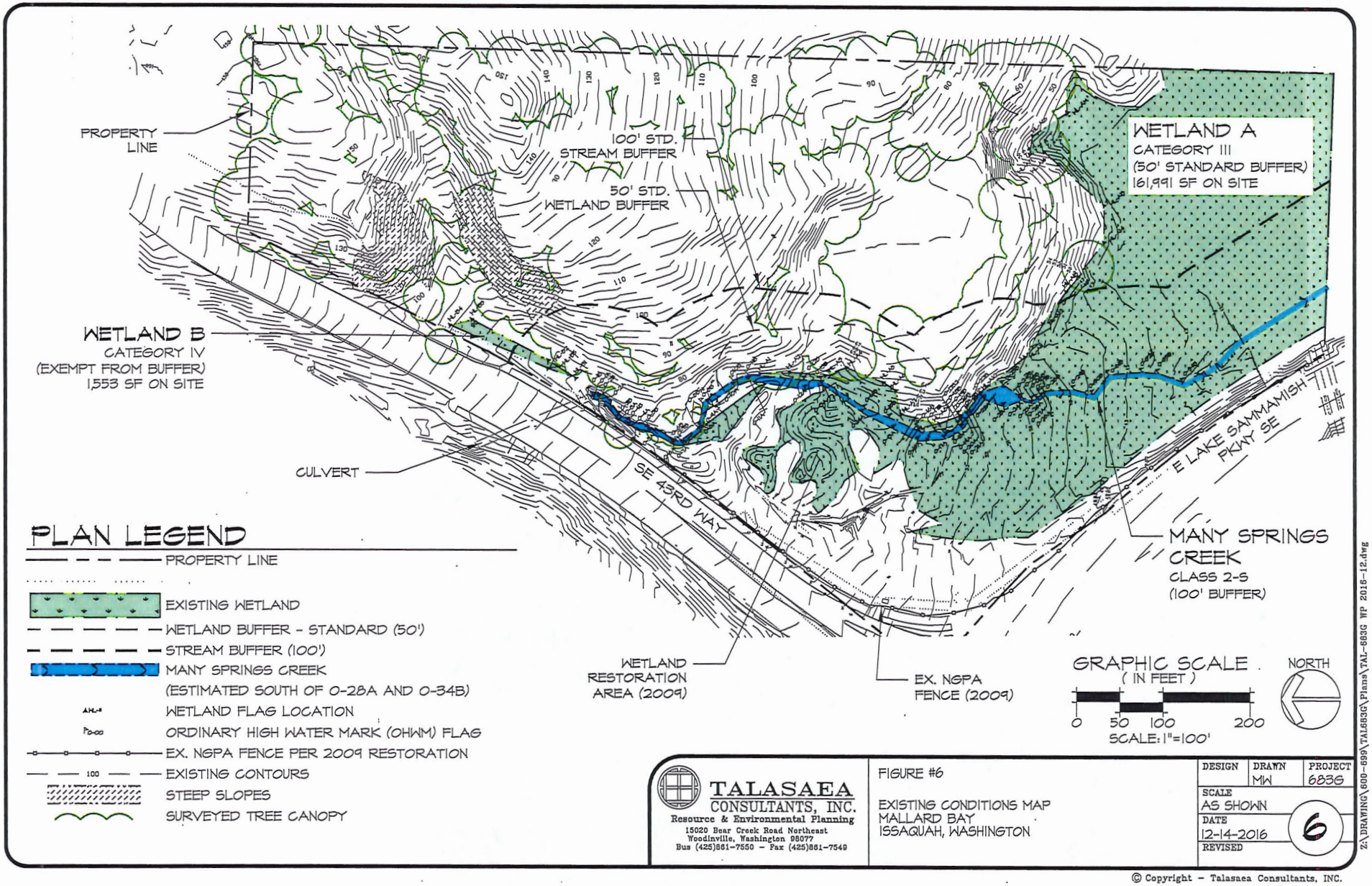

TALASAEA CONSULTANTS, INC.
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FIGURE #6

EXISTING CONDITIONS MAP
MALLARD BAY
ISSAQUAH, WASHINGTON

DESIGN	DRAWN	PROJECT
	MW	6836

SCALE
AS SHOWN

DATE
12-14-2016

REVISED

6

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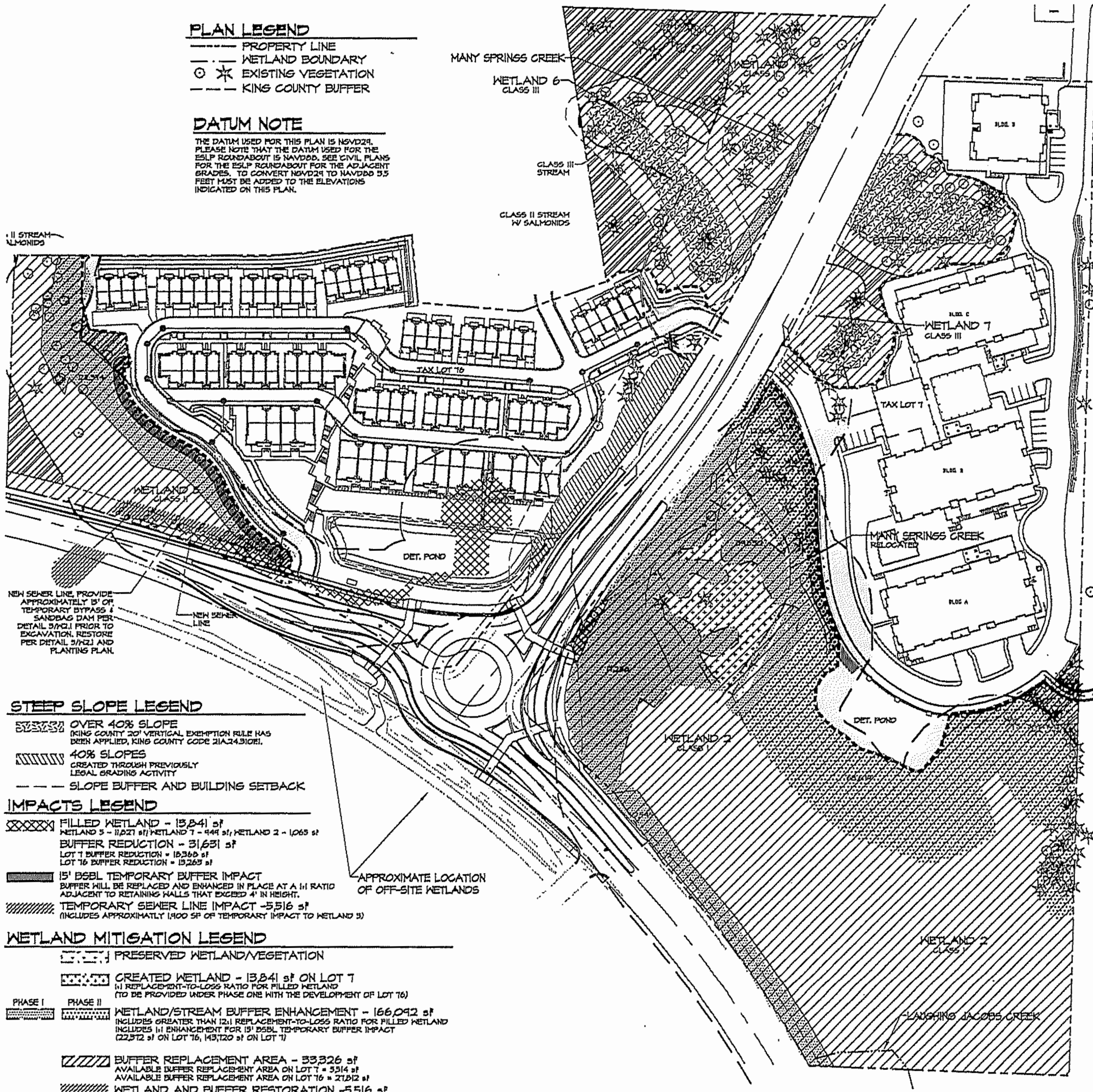


PLAN LEGEND

- PROPERTY LINE
- WETLAND BOUNDARY
- EXISTING VEGETATION
- KING COUNTY BUFFER

DATUM NOTE

THE DATUM USED FOR THIS PLAN IS NGVD29. PLEASE NOTE THAT THE DATUM USED FOR THE ESLP ROUNDABOUT IS NAVD88. SEE CIVIL PLANS FOR THE ESLP ROUNDABOUT FOR THE ADJACENT GRADES. TO CONVERT NGVD29 TO NAVD88 3.5 FEET MUST BE ADDED TO THE ELEVATIONS INDICATED ON THIS PLAN.

STEEP SLOPE LEGEND

- OVER 40% SLOPE (KING COUNTY 20' VERTICAL EXEMPTION RULE HAS BEEN APPLIED, KING COUNTY CODE 21A.24.310E1.
- 40% SLOPES CREATED THROUGH PREVIOUSLY LEGAL GRADING ACTIVITY
- SLOPE BUFFER AND BUILDING SETBACK

IMPACTS LEGEND

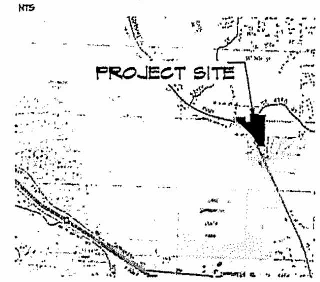
- FILLED WETLAND - 13,841 sf
  WETLAND 5 - 11,827 sf; WETLAND 7 - 949 sf; WETLAND 2 - 1,065 sf
- BUFFER REDUCTION - 31,631 sf
  LOT 7 BUFFER REDUCTION = 18,368 sf
  LOT 76 BUFFER REDUCTION = 13,263 sf
- 15' BSBL TEMPORARY BUFFER IMPACT
  BUFFER WILL BE REPLACED AND ENHANCED IN PLACE AT A 1:1 RATIO ADJACENT TO RETAINING WALLS THAT EXCEED 4' IN HEIGHT.
- TEMPORARY SEWER LINE IMPACT -5,516 sf
  (INCLUDES APPROXIMATLY 1,900 SF OF TEMPORARY IMPACT TO WETLAND 5)

WETLAND MITIGATION LEGEND

- PRESERVED WETLAND/VEGETATION
- CREATED WETLAND - 13,841 sf ON LOT 7
  1:1 REPLACEMENT-TO-LOSS RATIO FOR FILLED WETLAND
  (TO BE PROVIDED UNDER PHASE ONE WITH THE DEVELOPMENT OF LOT 76)
- PHASE I / PHASE II: WETLAND/STREAM BUFFER ENHANCEMENT - 166,092 sf
  INCLUDES GREATER THAN 12:1 REPLACEMENT-TO-LOSS RATIO FOR FILLED WETLAND
  INCLUDES 1:1 ENHANCEMENT FOR 15' BSBL TEMPORARY BUFFER IMPACT
  (22,372 sf ON LOT 76, 143,720 sf ON LOT 7)
- BUFFER REPLACEMENT AREA - 33,326 sf
  AVAILABLE BUFFER REPLACEMENT AREA ON LOT 7 = 5,514 sf
  AVAILABLE BUFFER REPLACEMENT AREA ON LOT 76 = 27,812 sf
- WETLAND AND BUFFER RESTORATION -5,516 sf
  (INCLUDES APPROXIMATLY 1,900 SF OF RESTORATION TO WETLAND 5)

VICINITY MAP

NTS



CONTACTS

APPLICANT

NAME:	THE DWELLING COMPANY
ADDRESS:	7821 SE 24TH STREET, STE. 650 MERCER ISLAND, WA 98040
PHONE:	206.557.4800
CONTACT:	LINDA STALZER

SURVEYOR

NAME:	ESM CONSULTING ENGINEERS
ADDRESS:	33915 FIRST WAY SOUTH, STE 200 FEDERAL WAY, WA 98003
PHONE:	(253) 838-6113

ENVIRONMENTAL CONSULTANT

NAME:	TALASAEA CONSULTANTS, INC.
ADDRESS:	15020 BEAR CREEK RD. NE WOODINVILLE, WA 98077
PHONE:	(425) 861-7550
CONTACT:	JASON WALKER

OVERVIEW PLAN

GRAPHIC SCALE (IN FEET)
0 10 20 40
SCALE: 1" = 20'
NORTH

SHEET INDEX

SHEET NUMBER	SHEET TITLE
W0.0	WETLAND MITIGATION OVERVIEW
W0.1	WETLAND MITIGATION REPORT
W1.0	EXISTING CONDITIONS PLAN
W1.1	DEMOLITIONS & TESC PLAN
W2.0	GRADING PLAN
W2.1	GRADING DETAILS
W2.2	GRADING SPECIFICATIONS
W3.0	PLANTING PLAN
W3.1	PLANTING SCHEDULE & DETAILS
W3.2	PLANTING SPECIFICATIONS

STATE OF WASHINGTON REGISTERED LANDSCAPE ARCHITECT
JASON TODD WALKER CERTIFICATE NO. 744

APPROVED FOR CONSTRUCTION

BY:
CITY OF ISSAQUAH DEPARTMENT OF PLANNING

DATE:

TALASAEA CONSULTANTS, INC.
Resource & Environmental Planning

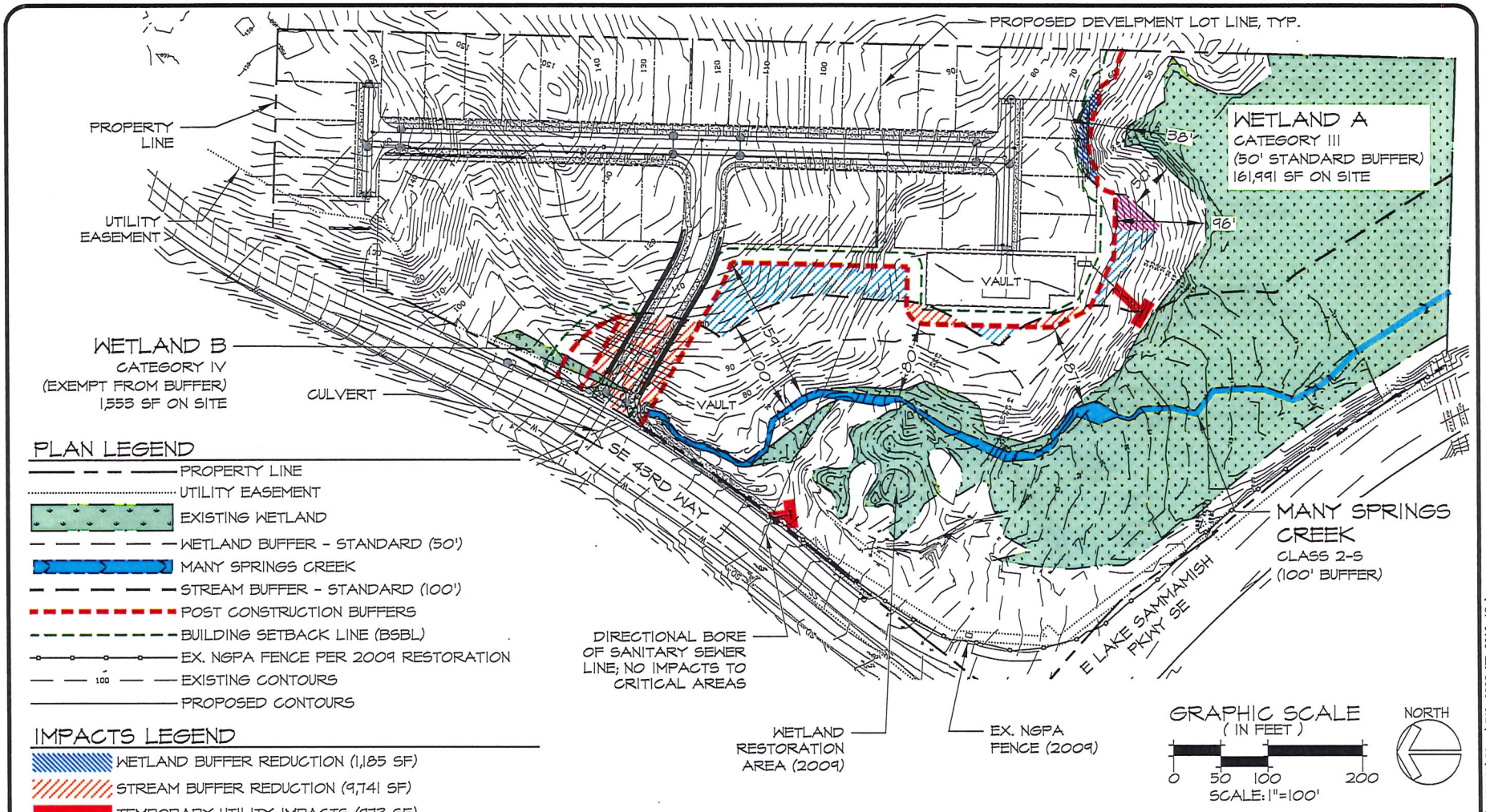
FINAL WETLAND MITIGATION PLAN
WETLAND MITIGATION OVERVIEW
MALLARD BAY LOTS 7 AND 76
ISSAQUAH, WASHINGTON

Revisions	Date	By
CITY COMMENTS	5-15-08	JG
BID SET	7-23-08	JH

Date 29 APR 08
Scale AS NOTED
Designed JH
Drawn WAG
Checked JH
Approved JH

Project # 667a/668b

Sheet # W0.0



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Resource & Environmental Planning
15020 Bear Creek Road Northeast
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FIGURE #7

PROPOSED SITE PLAN OVERVIEW
MALLARD BAY
ISSAQUAH, WASHINGTON

DESIGN	DRAWN	PROJECT
	MW	683G

SCALE: AS SHOWN
DATE: 12-14-2016
REVISED

7

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APPENDIX A

US ARMY CORPS OF ENGINEERS WETLAND DELINEATION DATA SHEETS

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: TAL-683G Mallard Bay Lot 7 City/County: Issaquah Sampling Date: 12-08-16

Applicant/Owner: The Burnsteads State: WA Sampling Point: A2

Investigator(s): DRT Section, Township, Range: SW ¼ Section 16, T24N, R6E, W.M.

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave Slope (%): >5%

Subregion (LRR): A Lat: 47.5685 Long: -122.0527 Datum: NAD83

Soil Map Unit Name: Kitsap silt loam 15 to 30 percent NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒ No ☐	**Is the Sampled Area within a Wetland?** Yes ☐ No ☒
Hydric Soil Present?	Yes ☐ No ☒	
Wetland Hydrology Present?	Yes ☒ No ☐	

Remarks: Despite hydrology being present, there is no formation of hydric or hydrically modified soils present. Positive hydrophytic vegetation is the result of 100 percent cover by Himalayan blackberry, which is an aggressive weedy species.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Alnus rubra*	50	Yes	FAC
2.			
3.			
4.			
	50	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 ft)			
1. *Rubus armeniacus*	100	Yes	FAC
2.			
3.			
4.			
5.			
	100	= Total Cover	
Herb Stratum (Plot size: 5 ft)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
		= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
		= Total Cover	

% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks:

SOIL

Sampling Point: A2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 4/2	100					GL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1 **(except MLRA 1)**)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☒

Remarks: Soil too wet below 10 inches to color. No redoximorphic features present within the soil profile.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1)**(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B))**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6**(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☒ No ☐ Depth (inches): 8

Saturation Present? (includes capillary fringe) Yes ☒ No ☐ Depth (inches): 6

Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: TAL-683G Mallard Bay Lot 7 City/County: Issaquah Sampling Date: 12-08-16

Applicant/Owner: The Burnsteads State: WA Sampling Point: A1

Investigator(s): DRT Section, Township, Range: SW ¼ Section 16, T24N, R6E, W.M.

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave Slope (%): >5%

Subregion (LRR): A Lat: 47.5685 Long: -122.0527 Datum: NAD83

Soil Map Unit Name: Kitsap silt loam 15 to 30 Percent NWI classification: PFOC

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ☒ No ☐ Hydric Soil Present? Yes ☒ No ☐ Wetland Hydrology Present? Yes ☒ No ☐	**Is the Sampled Area within a Wetland?** Yes ☒ No ☐

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Alnus rubra*	80	Yes	FAC
2.			FAC
3.			
4.			
	80 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft)			
1. *Rubus armeniacus*	100	Yes	FAC
2.			
3.			
4.			
5.			
	100 = Total Cover		
Herb Stratum (Plot size: 5 ft)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
Woody Vine Stratum (Plot size: 5)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks: Red alder is only partially rooted in the wetland. Blackberry precludes the presence of other species due to its density.

SOIL

Sampling Point: A1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 4/2	100					GL	
4"+	2.5Y 5/2	80	10YR 6/6	20	C	M	GSiL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☒ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1 **(except MLRA 1)**)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

Remarks: Soils possessed clear indicators of hydric soils.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1)**(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B))**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6**(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☒ No ☐ Depth (inches): 3

Saturation Present? (includes capillary fringe) Yes ☒ No ☐ Depth (inches): 0

Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: TAL-683G Mallard Bay Lot 7 City/County: Issaquah Sampling Date: 12-08-16

Applicant/Owner: The Burnsteads State: WA Sampling Point: B1

Investigator(s): DRT Section, Township, Range: SW ¼ Section 16, T24N, R6E, W.M.

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): _____ Slope (%): 2

Subregion (LRR): A Lat: 47.5685 Long: -122.0527 Datum: NAD83

Soil Map Unit Name: Everett very gravelly sandy loam 8 to 15 percent NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ☒ No ☐ Hydric Soil Present? Yes ☒ No ☐ Wetland Hydrology Present? Yes ☐ No ☒	**Is the Sampled Area within a Wetland?** Yes ☐ No ☒

Remarks: Test pit location may have been wetland at one time, but it appears that hydrology has shifted to the south. This test pit is on the cusp of the wetland boundary.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Alnus rubra*	90	Yes	FAC
2. *Thuja plicata*	5	No	FAC
3.			
4.			
	95	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 ft)			
1. *Rubus spectabilis*	10	Yes	FAC
2. *Rubus armeniacus*	5	Yes	FAC
3.			
4.			
5.			
	15	= Total Cover	
Herb Stratum (Plot size: 5 ft)			
1. *Phalaris arundinacea*	20	Yes	FACW
2. *Tolmea menziesii*	5	No	FAC
3. *Grasses*	5	No	FAC
4.			
5.			
6.			
7.			
8.			
	30	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____	= Total Cover	

% Bare Ground in Herb Stratum 50 % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks:

SOIL

Sampling Point: B1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 3/3	100					GSL	
5-8	10YR 3/2	70	10YR 5/8	30	C	M	GSL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1 **(except MLRA 1)**)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☒ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Till or small riprap

Depth (inches): 8

Hydric Soil Present? Yes ☒ No ☐

Remarks: The upper horizon with a chroms greater than 2 is less than 6" deep, meeting the requirements of the F indicators, but barely. This seems to indicate a trend toward a more upland condition.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1)**(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B))**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6**(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☐ No ☒ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): _____

Wetland Hydrology Present? Yes ☐ No ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Wetland hydrology was lacking from this area.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: TAL-683G Mallard Bay Lot 7 City/County: Issaquah Sampling Date: 12-08-16

Applicant/Owner: The Burnsteads State: WA Sampling Point: B2

Investigator(s): DRT Section, Township, Range: SW ¼ Section 16, T24N, R6E, W.M.

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): _____ Slope (%): 2

Subregion (LRR): A Lat: 47.5685 Long: -122.0527 Datum: NAD83

Soil Map Unit Name: Everett very gravelly sandy loam NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ☒ No ☐ Hydric Soil Present? Yes ☐ No ☒ Wetland Hydrology Present? Yes ☒ No ☐	**Is the Sampled Area within a Wetland?** Yes ☒ No ☐

Remarks: Given the presence of the wetland vegetation and hydrology, we assumed this area to be a wetland despite the lack of a positive hydric soil indicator.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Alnus rubra*	50	Yes	FAC
2. *Thuja plicata*	50	Yes	FAC
3.			
4.			
	100	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 ft)			
1. *Rubus spectabilis*	50	Yes	FAC
2. *Rubus armeniacus*	40	Yes	FAC
3.			
4.			
5.			
	90	= Total Cover	
Herb Stratum (Plot size: 5 ft)			
1. *Grasses*	20	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	20	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☒ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks:

SOIL

Sampling Point: B2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-8	10YR 3/2	100					GSL	
8"+	10YR 4/4	80	10YR 5/2	20	D	M	GSL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1 **(except MLRA 1)**)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☒

Remarks: Soils did not meet a hydric soil indicator, but they were also quite disturbed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1)**(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B))**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6**(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☒ No ☐ Depth (inches): 11

Saturation Present? (includes capillary fringe) Yes ☒ No ☐ Depth (inches): 6

Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Surface water flowing approximately 1 ½ ft to the south. Surface water eventually flooded test pit.

APPENDIX B

WASHINGTON DEPARTMENT OF ECOLOGY WETLAND RATING FORMS

Wetland name or number TAL-683G Wetland A

WETLAND RATING FORM – WESTERN WASHINGTON

Version 2 - Updated July 2006 to increase accuracy and reproducibility among users
Updated Oct 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): TAL- 683G Wetland A Date of site visit: 08-01-16

Rated by DRT Trained by Ecology? Yes ✓ No ___ Date of training 10-05

SEC: 16 TWNSHP: 24N RNGE: 6E Is S/T/R in Appendix D? Yes ___ No ✓

Map of wetland unit: Figure ____ Estimated size _____

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland

I ___ II ___ III ✓ IV ___

Category I = Score >=70
Category II = Score 51-69
Category III = Score 30-50
Category IV = Score < 30

Score for Water Quality Functions	12
Score for Hydrologic Functions	3
Score for Habitat Functions	19
TOTAL score for Functions	**34**

Category based on SPECIAL CHARACTERISTICS of wetland

I ___ II ___ Does not Apply ✓

Final Category (choose the "highest" category from above) **Cat. III**

Summary of basic information about the wetland unit

Wetland Unit has Special Characteristics		Wetland HGM Class used for Rating	
Estuarine		Depressional	✓
Natural Heritage Wetland		Riverine	
Bog		Lake-fringe	
Mature Forest		Slope	
Old Growth Forest		Flats	
Coastal Lagoon		Freshwater Tidal	
Interdunal			
None of the above	✓	Check if unit has multiple HGM classes present	

Does the wetland unit being rated meet any of the criteria below?

If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands That May Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. *Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered **animal or plant** species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		✓
SP2. *Has the wetland unit been documented as habitat for any State listed Threatened or Endangered **animal** species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands (see p. 19 of data form).		✓
SP3. *Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*		✓
SP4. *Does the wetland unit have a local significance in addition to its functions?* For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		✓

To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands into those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Wetland name or number TAL-683G Wetland A

Classification of Wetland Units in Western Washington

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides (i.e. except during floods)?

✓ NO – go to 2 **YES** – the wetland class is **Tidal Fringe**

If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)? **YES – Freshwater Tidal Fringe NO – Saltwater Tidal Fringe (Estuarine)**

*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is rated as an **Estuarine** wetland.* Wetlands that were called estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p.).

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

✓ NO – go to 3 **YES** – The wetland class is **Flats**

If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland unit **meet both** of the following criteria?

___The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) at least 20 acres (8 ha) in size;

___At least 30% of the open water area is deeper than 6.6 ft (2 m)?

✓ NO – go to 4 **YES** – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland unit **meet all** of the following criteria?

✓ The wetland is on a slope (*slope can be very gradual*),

✓ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.

___The water leaves the wetland **without being impounded**?

NOTE: *Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3ft diameter and less than 1 foot deep).*

✓ NO - go to 5 **YES** – The wetland class is **Slope**

5. Does the entire wetland unit **meet all** of the following criteria?

____ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river

____ The overbank flooding occurs at least once every two years.

NOTE: The riverine unit can contain depressions that are filled with water when the river is not flooding.

✓ NO - go to 6 **YES** – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year. *This means that any outlet, if present, is higher than the interior of the wetland.*

NO – go to 7 ✓ **YES** – The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

✓ NO – go to 8 **YES** – The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM clases. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM Classes within the wetland unit being rated	*HGM Class to Use in Rating*
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

If you are unable still to determine which of the above criteria apply to your wetland, or if you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

Wetland name or number TAL-683G Wetland A

D	**Depressional and Flats Wetlands** **WATER QUALITY FUNCTIONS** - Indicators that the wetland unit functions to improve water quality	**Points** (only 1 score per box)
D	**D 1. Does the wetland unit have the potential to improve water quality?**	*(see p.38)*
D	D 1.1 Characteristics of surface water flows out of the wetland: Unit is a depression with no surface water leaving it (no outlet) points = 3 Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 2 Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*) points = 1 Unit is a "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch points = 1 (*If ditch is not permanently flowing treat unit as "intermittently flowing"*) Provide photo or drawing	Figure ___ 1
D	S 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic *(use NRCS definitions)* YES points = 4 NO points = 0	0
D	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class) Wetland has persistent, ungrazed, vegetation > = 95% of area points = 5 Wetland has persistent, ungrazed, vegetation > = 1/2 of area points = 3 Wetland has persistent, ungrazed vegetation > = 1/10 of area points = 1 Wetland has persistent, ungrazed vegetation <1/10 of area points = 0 Map of Cowardin vegetation classes	Figure ___ 5
D	D1.4 Characteristics of seasonal ponding or inundation. *This is the area of the wetland unit that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 yrs.* Area seasonally ponded is > ½ total area of wetland points = 4 Area seasonally ponded is > ¼ total area of wetland points = 2 Area seasonally ponded is < ¼ total area of wetland points = 0 Map of Hydroperiods	Figure ___ 0
D	**Total for D 1** *Add the points in the boxes above*	6
D	**D 2. Does the wetland unit have the opportunity to improve water quality?** Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland. *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* — Grazing in the wetland or within 150 ft — Untreated stormwater discharges to wetland — Tilled fields or orchards within 150 ft of wetland ✓ A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging — Residential, urban areas, golf courses are within 150 ft of wetland — Wetland is fed by groundwater high in phosphorus or nitrogen — Other_____ **YES** multiplier is **2** **NO** multiplier is **1**	*(see p. 44)* multiplier 2
D	**TOTAL - Water Quality Functions** Multiply the score from D1 by D2 ***Add score to table on p. 1***	12

Comments:

Wetland name or number TAL-683G Wetland A

D	**Depressional and Flats Wetlands** HYDROLOGIC FUNCTIONS - Indicators that the wetland unit functions to reduce flooding and stream degradation	**Points** (only 1 score per box)
	D 3. Does the wetland unit have the potential to reduce flooding and erosion?	*(see p.46)*
D	D 3.1 Characteristics of surface water flows out of the wetland unit Unit is a depression with no surface water leaving it (no outlet) points = 4 Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 2 Unit is a "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* Unit has an unconstricted, or slightly constricted, surface outlet *(permanently flowing)* points = 0	0
D	D 3.2 Depth of storage during wet periods *Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry).* Marks of ponding are 3 ft or more above the surface or bottom of outlet points = 7 The wetland is a "headwater" wetland" points = 5 Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet points = 5 Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet points = 3 Unit is flat (yes to Q. 2 or Q. 7 on key) but has small depressions on the surface that trap water points = 1 Marks of ponding less than 0.5 ft points = 0	0
D	D 3.3 Contribution of wetland unit to storage in the watershed *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.* The area of the basin is less than 10 times the area of unit points = 5 The area of the basin is 10 to 100 times the area of the unit points = 3 The area of the basin is more than 100 times the area of the unit points = 0 Entire unit is in the FLATS class points = 5	3
D	**Total for D 3** *Add the points in the boxes above*	3
D	**D 4. Does the wetland unit have the opportunity to reduce flooding and erosion?** Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. *Note which of the following indicators of opportunity apply.* — Wetland is in a headwater of a river or stream that has flooding problems — Wetland drains to a river or stream that has flooding problems — Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems — Other _____ **YES** multiplier is 2 **NO** multiplier is 1	*(see p. 49)* multiplier 1
D	**TOTAL - Hydrologic Functions** Multiply the score from D 3 by D 4 ***Add score to table on p. 1***	3

Comments: Stream in wetland is tributary to Laughing Jacob's Creek, which flows directly into Lake Sammamish.

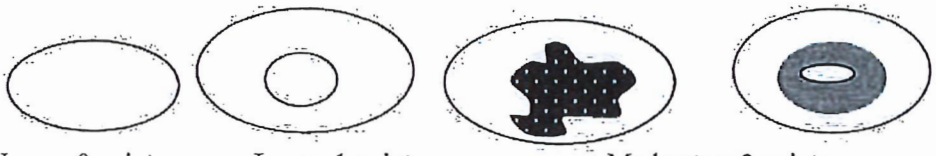
Wetland name or number TAL-683G Wetland A

These questions apply to wetlands of all HGM classes. HABITAT FUNCTIONS - Indicators that unit functions to provide important habitat	**Points** (only 1 score per box)
H 1. Does the wetland unit have the potential to provide habitat for many species?	
H 1.1 Vegetation structure *(see p. 72)* *Check the types of vegetation classes present (as defined by Cowardin)- Size threshold for each class is ¼ acre or more than 10% of the area if unit is smaller than 2.5 acres.* ____Aquatic bed __✓__Emergent plants ____Scrub/shrub (areas where shrubs have >30% cover) __✓__Forested (areas where trees have >30% cover) *If the unit has a forested class check if:* __✓__The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon *Add the number of vegetation structures that qualify. If you have:* 4 structures or more points = 4 3 structures points = 2 2 structures points = 1 1 structure points = 0 Map of Cowardin vegetation classes	Figure ___ 2
H 1.2. Hydroperiods *(see p. 73)* *Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ acre to count. (see text for descriptions of hydroperiods)* __✓__Permanently flooded or inundated ____Seasonally flooded or inundated ____Occasionally flooded or inundated __✓__Saturated only 4 or more types present points = 3 3 types present points = 2 2 types present point = 1 1 type present points = 0 __✓__Permanently flowing stream or river in, or adjacent to, the wetland ____Seasonally flowing stream in, or adjacent to, the wetland ____***Lake-fringe wetland* = 2 points** ____***Freshwater tidal wetland* = 2 points** Map of hydroperiods	Figure ___ 2
H 1.3. Richness of Plant Species *(see p. 75)* Count the number of plant species in the wetland that cover at least 10 ft^2. (*different patches of the same species can be combined to meet the size threshold)* *You do not have to name the species.* *Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle* If you counted: > 19 species points = 2 5 - 19 species points = 1 < 5 species points = 0 *List species below if you want to:* *Eqte, Eqar, Eqfl, Atfi, Rusp, Ronu, Alru, Lyam, Poba, Thpl, Veam, Tome, Ruar, Mafu, Tyla.* *We anticipate that other species are present in the offsite portion of Wetland A that are not included in this list.*	2

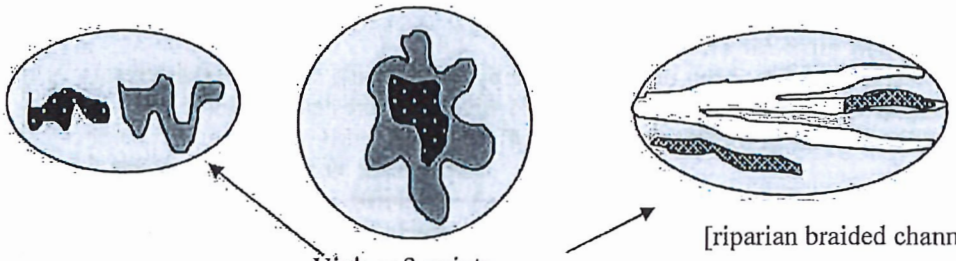
Total for page 6

H 1.4. Interspersion of habitats *(see p. 76)*

Decide from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.



None = 0 points Low = 1 point ✓ Moderate = 2 points



[riparian braided channels]

High = 3 points

NOTE: If you have four or more classes or three vegetation classes and open water the rating is always "high". Use map of Cowardin vegetation classes

Figure ___

2

H 1.5. Special Habitat Features: *(see p. 77)*

Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.

✓ Large, downed, woody debris within the wetland (>4in. diameter and 6 ft long).

✓ Standing snags (diameter at the bottom > 4 inches) in the wetland

____ Undercut banks are present for at least 6.6 ft (2m) and/or overhanging vegetation extends at least 3.3 ft (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft (10m)

____ Stable steep banks of fine material that might be used by beaver or muskrat for denning (>30degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet turned grey/brown)*

____ At least ¼ acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated. *(structures for egg-laying by amphibians)*

____ Invasive plants cover less than 25% of the wetland area in each stratum of plants

NOTE: The 20% stated in early printings of the manual on page 78 is an error.

2

H 1. TOTAL Score - potential for providing habitat
Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5

10

Comments

Wetland name or number TAL-683G Wetland A

H 2. Does the wetland unit have the opportunity to provide habitat for many species?	
H 2.1 Buffers *(see p. 80)* *Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed."* — 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% of circumference. No structures are within the undisturbed part of buffer. (relatively undisturbed also means no-grazing, no landscaping, no daily human use) **Points = 5** — 100 m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference. **Points = 4** — 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. **Points = 4** ✓ — 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference, . **Points = 3** — 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference. **Points = 3** **If buffer does not meet any of the criteria above** — No paved areas (except paved trails) or buildings within 25 m (80ft) of wetland > 95% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** — No paved areas or buildings within 50m of wetland for >50% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** — Heavy grazing in buffer. **Points = 1** — Vegetated buffers are <2m wide (6.6ft) for more than 95% of the circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland **Points = 0.** — Buffer does not meet any of the criteria above. **Points = 1** Aerial photo showing buffers	Figure ___ 3
H 2.2 Corridors and Connections *(see p. 81)* H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft wide, has at least 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? (*dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor*). YES = **4 points** (*go to H 2.3*) NO = go to H 2.2.2 H 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50ft wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR** a **Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? ✓ YES = **2 points** (*go to H 2.3*) NO = H 2.2.3 H 2.2.3 Is the wetland: within 5 mi (8km) of a brackish or salt water estuary OR within 3 mi of a large field or pasture (>40 acres) OR within 1 mi of a lake greater than 20 acres? YES = **1 point** NO = **0 points**	2

Total for page 5

H 2.3 Near or adjacent to other priority habitats listed by WDFW *(see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report http://wdfw.wa.gov/hab/phslist.htm)* Which of the following priority habitats are within 330ft (100m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed.* ____**Aspen Stands:** Pure or mixed stands of aspen greater than 0.4 ha (1 acre). ____**Biodiversity Areas and Corridors:** Areas of habitat that are relatively important to various species of native fish and wildlife *(full descriptions in WDFW PHS report p. 152)*. ____**Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock. ____**Old-growth/Mature forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. (Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest. ____**Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important *(full descriptions in WDFW PHS report p. 158)*. ____**Riparian:** The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other. ____**Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie *(full descriptions in WDFW PHS report p. 161)*. ____**Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources. ____ **Nearshore:** Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. *(full descriptions of habitats and the definition of relatively undisturbed are in WDFW report: pp. 167-169 and glossary in Appendix A)*. ____**Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human. ____**Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft. ____**Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs. ✓ **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long. If wetland has **3 or more** priority habitats = **4 points** If wetland has **2** priority habitats = **3 points** If wetland has **1** priority habitat = **1 point** No habitats = 0 points *Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)*	1

H 2.4 Wetland Landscape *(choose the **one** description of the landscape around the wetland that best fits)* ***(see p. 84)*** There are at least 3 other wetlands within ½ mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development. points = 5 The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within ½ mile points = 5 There are at least 3 other wetlands within ½ mile, BUT the connections between them are disturbed points = 3 The wetland is Lake-fringe on a lake **with** disturbance and there are 3 other lake-fringe wetland within ½ mile points = 3 There is at least 1 wetland within ½ mile. points = 2 There are no wetlands within ½ mile. points = 0	3
H 2. TOTAL Score - opportunity for providing habitat *Add the scores from H2.1,H2.2, H2.3, H2.4*	9
TOTAL for H 1 from page 14	10
Total Score for Habitat Functions – add the points for H 1, H 2 and record the result on p. 1	19

Wetland name or number TAL-683G Wetland B

WETLAND RATING FORM – WESTERN WASHINGTON
Version 2 - Updated July 2006 to increase accuracy and reproducibility among users
Updated Oct 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): TAL-683G Wetland B Date of site visit: 08-01-16

Rated by DRT Trained by Ecology? Yes ✓ No ___ Date of training 10-05

SEC: 16 TWNSHP: 24N RNGE: 6E Is S/T/R in Appendix D? Yes ___ No ___

Map of wetland unit: Figure ____ Estimated size _____

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland

I ___ II ___ III ___ IV ✓

Category I = Score >=70
Category II = Score 51-69
Category III = Score 30-50
Category IV = Score < 30

Score for Water Quality Functions	8
Score for Hydrologic Functions	6
Score for Habitat Functions	17
TOTAL score for Functions	**31**

Category based on SPECIAL CHARACTERISTICS of wetland

I ___ II ___ Does not Apply ✓

Final Category (choose the "highest" category from above) **Cat. IV**

Summary of basic information about the wetland unit

Wetland Unit has Special Characteristics		Wetland HGM Class used for Rating	
Estuarine		Depressional	
Natural Heritage Wetland		Riverine	
Bog		Lake-fringe	
Mature Forest		Slope	✓
Old Growth Forest		Flats	
Coastal Lagoon		Freshwater Tidal	
Interdunal			
None of the above	✓	Check if unit has multiple HGM classes present	

Does the wetland unit being rated meet any of the criteria below?

If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands That May Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. *Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered **animal or plant** species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		✓
SP2. *Has the wetland unit been documented as habitat for any State listed Threatened or Endangered **animal** species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands (see p. 19 of data form).		✓
SP3. *Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*		✓
SP4. *Does the wetland unit have a local significance in addition to its functions*? For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		✓

To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands into those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Wetland name or number TAL-683G Wetland B

Classification of Wetland Units in Western Washington

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides (i.e. except during floods)?

✓ NO – go to 2 **YES** – the wetland class is **Tidal Fringe**

If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)? **YES – Freshwater Tidal Fringe NO – Saltwater Tidal Fringe (Estuarine)**

*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is rated as an **Estuarine** wetland.* Wetlands that were called estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p.).

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

✓ NO – go to 3 **YES** – The wetland class is **Flats**

If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland unit **meet both** of the following criteria?

___The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) at least 20 acres (8 ha) in size;

___At least 30% of the open water area is deeper than 6.6 ft (2 m)?

✓ NO – go to 4 **YES** – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland unit **meet all** of the following criteria?

✓ The wetland is on a slope (*slope can be very gradual*),

✓ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.

✓ The water leaves the wetland **without being impounded**?

NOTE: *Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3ft diameter and less than 1 foot deep).*

NO - go to 5 ✓ **YES** – The wetland class is **Slope**

5. Does the entire wetland unit **meet all** of the following criteria?

____ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river

____ The overbank flooding occurs at least once every two years.

NOTE: The riverine unit can contain depressions that are filled with water when the river is not flooding.

✓ NO - go to 6 **YES** – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year. *This means that any outlet, if present, is higher than the interior of the wetland.*

✓ NO – go to 7 **YES** – The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

✓ NO – go to 8 **YES** – The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM clases. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM Classes within the wetland unit being rated	*HGM Class to Use in Rating*
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

If you are unable still to determine which of the above criteria apply to your wetland, or if you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

Wetland name or number TAL-683G Wetland B

S	Slope Wetlands WATER QUALITY FUNCTIONS - Indicators that the wetland unit functions to improve water quality	Points (only 1 score per box)
S	**S 1. Does the wetland unit have the potential to improve water quality?**	*(see p.64)*
S	S 1.1 Characteristics of average slope of unit: Slope is1% or less *(a 1% slope has a 1 foot vertical drop in elevation for every 100 ft horizontal distance)* points = 3 Slope is 1% - 2% points = 2 Slope is 2% - 5% points = 1 Slope is greater than 5% points = 0	2
S	S 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic *(use NRCS definitions)* YES = 3 points NO = 0 points	0
S	S 1.3 Characteristics of the vegetation in the wetland that trap sediments and pollutants: *Choose the points appropriate for the description that best fits the vegetation in the wetland. Dense vegetation means you have trouble seeing the soil surface (>75% cover), and uncut means not grazed or mowed and plants are higher than 6 inches.* Dense, uncut, herbaceous vegetation > 90% of the wetland area points = 6 Dense, uncut, herbaceous vegetation > 1/2 of area points = 3 Dense, woody, vegetation > ½ of area points = 2 Dense, uncut, herbaceous vegetation > 1/4 of area points = 1 Does not meet any of the criteria above for vegetation points = 0 Aerial photo or map with vegetation polygons	Figure ___ 6
S	**Total for S 1** *Add the points in the boxes above*	8
S	**S 2. Does the wetland unit have the opportunity to improve water quality?** Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland. *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* — Grazing in the wetland or within 150ft — Untreated stormwater discharges to wetland — Tilled fields, logging, or orchards within 150 feet of wetland — Residential, urban areas, or golf courses are within 150 ft upslope of wetland — Other _____ **YES** multiplier is **2** **NO** multiplier is **1**	*(see p.67)* multiplier 1
S	**TOTAL - Water Quality Functions** Multiply the score from S1 by S2 ***Add score to table on p. 1***	8

Comments

Wetland name or number TAL-683G Wetland B

S	Slope Wetlands HYDROLOGIC FUNCTIONS - Indicators that the wetland unit functions to reduce flooding and stream erosion	Points (only 1 score per box)
	S 3. Does the wetland unit have the potential to reduce flooding and stream erosion?	*(see p.68)*
S	S 3.1 Characteristics of vegetation that reduce the velocity of surface flows during storms. *Choose the points appropriate for the description that best fit conditions in the wetland. (stems of plants should be thick enough (usually > 1/8in), or dense enough, to remain erect during surface flows)* Dense, uncut, **rigid** vegetation covers > 90% of the area of the wetland. points = 6 Dense, uncut, **rigid** vegetation > 1/2 area of wetland points = 3 Dense, uncut, **rigid** vegetation > 1/4 area points = 1 More than 1/4 of area is grazed, mowed, tilled or vegetation is not rigid points = 0	6
S	S 3.2 Characteristics of slope wetland that holds back small amounts of flood flows: The slope wetland has small surface depressions that can retain water over at least 10% of its area. YES points = 2 NO points = 0	0
S	*Add the points in the boxes above*	6
S	**S 4. Does the wetland have the opportunity to reduce flooding and erosion?** *(see p. 70)* Is the wetland in a landscape position where the reduction in water velocity it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows? *Note which of the following conditions apply.* — Wetland has surface runoff that drains to a river or stream that has flooding problems — Other_____ *(Answer NO if the major source of water is controlled by a reservoir (e.g. wetland is a seep that is on the downstream side of a dam)* **YES** multiplier is **2** **NO** multiplier is **1**	multiplier 1
S	**TOTAL - Hydrologic Functions** Multiply the score from S 3 by S 4 ***Add score to table on p. 1***	6

Comments

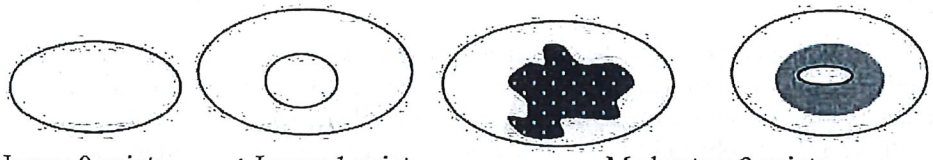
Wetland name or number TAL-683G Wetland B

These questions apply to wetlands of all HGM classes. HABITAT FUNCTIONS - Indicators that unit functions to provide important habitat	**Points** (only 1 score per box)
H 1. Does the wetland unit have the potential to provide habitat for many species?	
H 1.1 Vegetation structure ***(see p. 72)***	**Figure** ___
Check the types of vegetation classes present (as defined by Cowardin)- Size threshold for each class is ¼ acre or more than 10% of the area if unit is smaller than 2.5 acres.	
___ Aquatic bed	
✓ Emergent plants	
✓ Scrub/shrub (areas where shrubs have >30% cover)	
___ Forested (areas where trees have >30% cover)	
If the unit has a forested class check if:	1
___ The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon	
Add the number of vegetation structures that qualify. If you have:	
4 structures or more points = 4	
Map of Cowardin vegetation classes — 3 structures points = 2	
2 structures points = 1	
1 structure points = 0	
H 1.2. Hydroperiods ***(see p. 73)***	**Figure** ___
Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ acre to count. (see text for descriptions of hydroperiods)	
___ Permanently flooded or inundated — 4 or more types present points = 3	
___ Seasonally flooded or inundated — 3 types present points = 2	
___ Occasionally flooded or inundated — 2 types present point = 1	0
✓ Saturated only — 1 type present points = 0	
___ Permanently flowing stream or river in, or adjacent to, the wetland	
___ Seasonally flowing stream in, or adjacent to, the wetland	
___ ***Lake-fringe wetland*** = **2 points**	
___ ***Freshwater tidal wetland*** = **2 points** Map of hydroperiods	
H 1.3. Richness of Plant Species ***(see p. 75)***	
Count the number of plant species in the wetland that cover at least 10 ft^2. (*different patches of the same species can be combined to meet the size threshold)*	
You do not have to name the species.	
Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle	
If you counted: > 19 species points = 2	
List species below if you want to: 5 - 19 species points = 1	
Frla, Alru, Rusp, Tome, Atfi, Ruar < 5 species points = 0	1

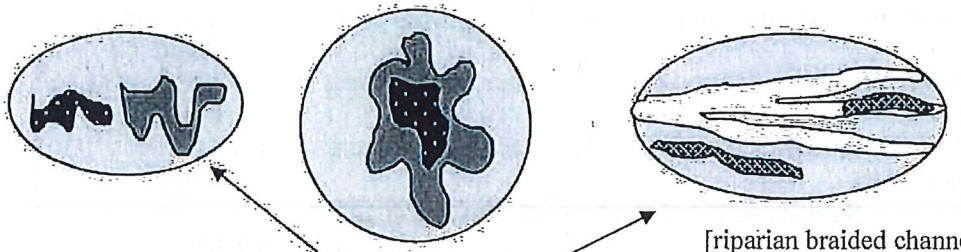
Total for page 2

H 1.4. Interspersion of habitats *(see p. 76)*

Decide from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.



None = 0 points ✓ Low = 1 point Moderate = 2 points



High = 3 points [riparian braided channels]

NOTE: If you have four or more classes or three vegetation classes and open water the rating is always "high". Use map of Cowardin vegetation classes

Figure ___

1

H 1.5. Special Habitat Features: *(see p. 77)*

Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.

___✓ Large, downed, woody debris within the wetland (>4in. diameter and 6 ft long).

____ Standing snags (diameter at the bottom > 4 inches) in the wetland

____ Undercut banks are present for at least 6.6 ft (2m) and/or overhanging vegetation extends at least 3.3 ft (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft (10m)

____ Stable steep banks of fine material that might be used by beaver or muskrat for denning (>30degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet turned grey/brown)*

____ At least ¼ acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated. *(structures for egg-laying by amphibians)*

____ Invasive plants cover less than 25% of the wetland area in each stratum of plants

NOTE: The 20% stated in early printings of the manual on page 78 is an error.

1

H 1. TOTAL Score - potential for providing habitat
Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5

4

Comments

Wetland name or number TAL-683G Wetland B

H 2. Does the wetland unit have the opportunity to provide habitat for many species?	
H 2.1 Buffers *(see p. 80)* *Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed."* — 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% of circumference. No structures are within the undisturbed part of buffer. (relatively undisturbed also means no-grazing, no landscaping, no daily human use) **Points = 5** ✓ — 100 m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference. **Points = 4** — 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. **Points = 4** — 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference, . **Points = 3** — 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference. **Points = 3** **If buffer does not meet any of the criteria above** — No paved areas (except paved trails) or buildings within 25 m (80ft) of wetland > 95% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** — No paved areas or buildings within 50m of wetland for >50% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** — Heavy grazing in buffer. **Points = 1** — Vegetated buffers are <2m wide (6.6ft) for more than 95% of the circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland **Points = 0.** — Buffer does not meet any of the criteria above. **Points = 1** Aerial photo showing buffers	Figure ___ 4
H 2.2 Corridors and Connections *(see p. 81)* H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft wide, has at least 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? (*dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor*). YES = **4 points** (*go to H 2.3*) NO = go to H 2.2.2 H 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50ft wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR** a **Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? ✓ YES = **2 points** (*go to H 2.3*) NO = H 2.2.3 H 2.2.3 Is the wetland: within 5 mi (8km) of a brackish or salt water estuary OR within 3 mi of a large field or pasture (>40 acres) OR within 1 mi of a lake greater than 20 acres? YES = **1 point** NO = **0 points**	2

Total for page 6

H 2.3 Near or adjacent to other priority habitats listed by WDFW *(see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report http://wdfw.wa.gov/hab/phslist.htm)* Which of the following priority habitats are within 330ft (100m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed.* ____**Aspen Stands:** Pure or mixed stands of aspen greater than 0.4 ha (1 acre). ____**Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report p. 152*). ____**Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock. ____**Old-growth/Mature forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. (Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest. ____**Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158*). ✓ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other. ____**Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161*). ✓ **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources. ____ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report: pp. 167-169 and glossary in Appendix A).* ____**Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human. ____**Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft. ____**Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs. ✓ **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long. If wetland has **3 or more** priority habitats = **4 points** If wetland has **2** priority habitats = **3 points** If wetland has **1** priority habitat = **1 point** No habitats = 0 points *Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)*	4

H 2.4 Wetland Landscape *(choose the one description of the landscape around the wetland that best fits)* ***(see p. 84)*** There are at least 3 other wetlands within ½ mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development. points = 5 The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within ½ mile points = 5 There are at least 3 other wetlands within ½ mile, BUT the connections between them are disturbed points = 3 The wetland is Lake-fringe on a lake **with** disturbance and there are 3 other lake-fringe wetland within ½ mile points = 3 There is at least 1 wetland within ½ mile. points = 2 There are no wetlands within ½ mile. points = 0	3
H 2. TOTAL Score - opportunity for providing habitat *Add the scores from H2.1, H2.2, H2.3, H2.4*	13
TOTAL for H 1 from page 14	4
Total Score for Habitat Functions – add the points for H 1, H 2 and record the result on p. 1	17

APPENDIX C

MALLARD BAY – LOT 76
OFFSITE MITIGATION PLANS